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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,027	03/30/2001	Jian J. Chen	2328-050	5541

7590

03/31/2004

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EXAMINER

CROWELL, ANNA M

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 03/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action	Application No. 09/821,027	Applicant(s) CHEN ET AL.	
	Examiner Michelle Crowell	Art Unit 1763	<i>eb</i>

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 23 February 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
 - (b) ☐ they raise the issue of new matter (see Note below);
 - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
 - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____.

Claim(s) objected to: _____.

Claim(s) rejected: 11-25 and 28-40.

Claim(s) withdrawn from consideration: 1-10.

8. ☐ The drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.
10. ☐ Other: _____

P. Hassanrad
Primary Examiner
AU 1763

Continuation of 5. does NOT place the application in condition for allowance because: Note. The comments regarding the 112 rejection has been considered and found persuasive, and thus the 112 rejection has been dropped.

With regards to the issue of Chu et al. directly varying the total output, Chu et al. explicitly states that the controller 62 controls the power (col. 5, lines 58-61). The reference fails to state that the controller is a switch for simply turning on and off the power. Furthermore, the power is not changed indirectly in response to other plasma processing parameters such as pressure or gas flow rate.

With regards to the issue that the apparatus of Chu et al. is capable of controlling total power and variable impedance arrangements, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to provide a controller as set forth in claims 12, 32, and 33 is to control the distribution and the uniformity of the plasma, thereby controlling the process being performed within the apparatus. Additionally, Chu et al. discloses that by controlling the variable impedance arrangements, uniformity of plasma is achieved (col. 5, lines 53-55). Furthermore, Li et al. teaches that by controlling the power, plasma distribution is achieved (col. 12, lines 19-37).

With regards to the issue that Sato et al. never says networks 165a-165k include variable impedances and that the patent never says the controller 180 controls any elements in networks 165a-165k to control the power applied to antenna loops 150a-150k, Sato et al. was applied to disclose controlling variable impedance arrangements 160a-160k. Sato et al. is silent on whether the networks 165a-165k include variable impedances; however, it is known in the art for reactive networks to include variable impedances (Shan et al. '937-reactive network 40, Fujii '271-reactive network 9, Hanawa '357-reactive network 30). Tomioka et al. teaches direct control of the power supplied to the coils. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. Thus, the combination of Sato et al. in view of Tomioka et al. or Chu et al. satisfies the claimed requirement.

With regards to the issue of Tomioka et al. directly varying the total output, Tomioka et al. explicitly states that the controller 14 controls the power (col. 6, lines 11-14). The reference fails to state that the controller is a switch for simply turning on and off the power. In addition, the controller is directly connect to the power sources 7 and 10 as seen in Figure 4. Furthermore, the power is not changed indirectly in response to other plasma processing parameters such as pressure or gas flow rate.

With regards to varying the output power of sources 7 and 10 so that for different amounts of total power, there are different distributions of electromagnetic fields as in claims 11 and 31, it should be noted that the different distributions of electromagnetic fields is achieved by varying the values of components of the variable impedance arrangements which is achieved by Sato et al or Chu et al. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. Thus, the combination of Sato et al. in view of Tomioka et al. or Chu et al. satisfies the claimed requirement.

With regards to the issue of Chu et al. and Sato et al. coils that differ so extensively, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Chen et al. teaches that by varying the location and value of the maximum amplitude, uniform plasma can be achieved. Thus, combining Chu et al. or Sato et al. with Chen et al. will further improve plasma uniformity.

With regards to the relationship between source frequency and winding length, Sato in view of Tomioka et al. teaches an RF source 170 (Sato et al.) and controlling the frequency (Tomioka et al.). Additionally, it is well known in the art alter the length of a winding to achieve a desired process. Thus, the combination of Sato et al. in view of Tomioka et al. satisfies the claimed requirement.

With regards to the issue that Chu et al. is not interested in a symmetrical relationship as taught in Van Gogh, it should be noted that Van Gogh indicates that the motivation of a symmetrical and uniform current is that improved process uniformity is achieved. (col. 2, line 35-col. 3, line 12, col. 4, line 54-col. 5, line 32). Thus, the combination of Chu et al. in view of Van Gogh satisfies the claimed requirement.

Furthermore, it should be noted about the invention that it is a coil including a plurality of windings 40, 42. The windings include an inner winding 40 and an outer winding 42. The two windings are not physically in parallel, they are concentric. The current supplied to each winding is in parallel. Moreover, there is no physical connection between the two windings, but simply current is supplied to each winding from one source.